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SERBELODON BURNHAMI, A NEW SHOVEL-TUSKER FROM CALIFORNIA

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The discovery of a new shovel-tusker, distinct from *Amebelodon* and *Platybelodon*, is among the great surprises of the recent explorations by Mr. Childs Frick. He has kindly asked me to describe this novelty.

Serbelodon burnhami, sp. nov., type mandible, F: A. M. 18228, discovered by Mr. John C. Blick, Ricardo, California, February, 1933, "just above the last basalt flow some miles northeast of Ricardo post office and apparently in or near the base of the Ricardo. . . . Fragments to date [April 12, 1933] evidence an associated fauna that includes a moderate sized horse (*?Pliohippus*), a large and a small sized camel, and an antelope (*?Merycodus*). . . . Two superior tusk fragments [were] received with the symphysis—a much aged and worn distal fragment, F: A. M. 18228A, and a distal section of a smaller tusk, F: A. M. 18228B."

The type consists of the anterior portion of the mandible with two broad flattened incisive teeth and, as compared with *Platybelodon grangeri*, relatively narrow rostrum. It is also apparently distinguished by the absence of the dentinal tubules characteristic both of *Platybelodon grangeri* and of *Amebelodon fricki*. The shape of the rostrum suggests comparison with that of *Serbelodon barbourensis* (F: A. M. 25730) found in the lower Pliocene of Ainsworth, Nebraska. The size of *Serbelodon barbourensis* of the lower Pliocene is similar to that of *Serridentinus serridens*, but the size of *Serbelodon burnhami* of the upper Pliocene will probably be found to equal that of *Platybelodon grangeri*. Not only in size but in the evolution of the shovel tusks, *Serbelodon burnhami* is far more primitive than *Serbelodon barbourensis*.

Comparative measurements of *Platybelodon grangeri*, *Serbelodon barbourensis* and *Serbelodon burnhami* are as follows:

	Platybelodon grangeri (A. M. 26468)	*Serbelodon burnhami* (F: A. M. 18228)	*Serbelodon barbourensis* (F: A. M. 25730)
Condyle to extremity of symphysis	1300		910 mm.
Length of incisors	510	610	380
Terminal width of incisors	163	133	77
Combined width of incisors at emergence from ramus	342	313	177
Maximum thickness of tusk	32	47	45
Length of symphysis	640	630e	305
Width of ramus across narrowest part	151	296	178

The incisors of the *Serbelodon burnhami* type resemble those of the *Serbelodon barbourensis* type in evidence of superior wearing abrasion of the proboscis and of lateral and interior rounding action, leaving them gently rounded or convex as viewed from in front, whereas in *Platybelodon grangeri* there is less evidence of superior abrasion by the proboscis than of strong evidence of the sharp chisel-shaped edge being produced by wear on flattened stones, this being characteristic of all the incisive teeth in the large American Museum collection from the Tung Gur beds of the Gobi Desert representing all stages of growth. Secondly, in *Serbelodon* the upper face of the incisors is transversely concave and upcurved on the outer border while that of *Platybelodon* is relatively plain. Thirdly, there is no trace of dentinal tubules in *Serbelodon*, the interior of the tusks being pure dentine.

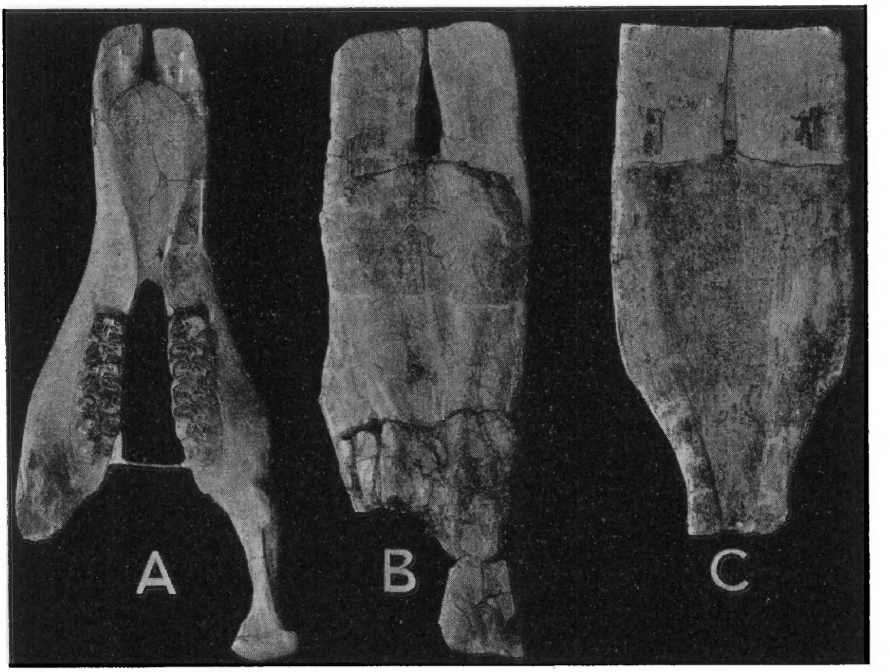
The symphysis of *Serbelodon burnhami*, while badly fractured, broadly resembles that of *Serbelodon barbourensis* in lacking the pronounced broadening of the rostrum characteristic of *Platybelodon grangeri*, the sides converging gradually into the sharp superior border and relatively stout section of the ramus even at its narrowest point in contrast to the extremely compressed ramus of *Platybelodon*. While the *Serbelodon burnhami* jaw is nearly double the size of that of *Serbelodon barbourensis*, it nevertheless exhibits numerous similar generic characters although very clearly separated as to species. We take great pleasure in naming this new species after Mr. Frederick Burnham,

brother-in-law of Mr. Blick to whom American palaeontology is so greatly indebted for his very successful explorations in the Pliocene fauna of North America.

Generic Characters of Serbelodon

The type of *Serbelodon burnhami* enables us to expand the generic description of *Serbelodon* by Mr. Childs Frick,[1] as follows:

Serbelodon: (1) Mandibular symphysis heavy and short, inferior incisors of shovel-tusk adaptation broadened, analogous to those of



Serbelodon, Amebelodon, Platybelodon, Shovel-tusks Compared

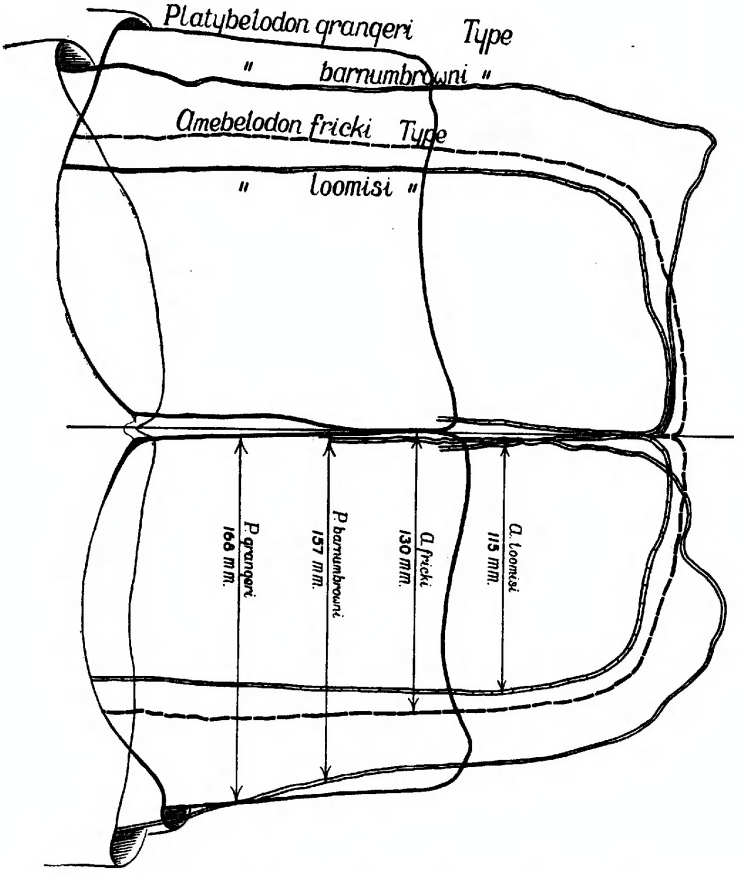
Fig. 1. (A) Type mandible of *Serbelodon barbourensis* Frick (F: A. M. 25730); (B) Type rostrum of *Serbelodon burnhami* Osborn (F: A. M. 18228); (C) Rostrum of *Platybelodon grangeri* ref. (A. M. 26468). All to the same scale of about 1/13 natural size.

Platybelodon but distinguished by absence of dentinal tubules; (2) mandibular rostrum relatively broad, without the posterior constriction of the symphysis characteristic of *Platybelodon*; (3) shovel-shaped incisors with rounded lateral and inferior extremities as in *Amebelodon*, in contrast to chisel-shaped extremities of *Platybelodon*; (4) grinding teeth of

[1]Frick, Childs. 1933. 'New Remains of Trilophodont-Tetrabelodont Mastodons.' Bull. Amer. Mus. Nat. Hist., LIX, Art. IX, pp. 592, 594 *et seq.*

primitive serridentine pattern unlike those of *Amebelodon*; (5) shovel-tusk adaptation progressive from *Serbelodon barbourensis* (lower Pliocene), an animal of medium size, to that of *Serbelodon burnhami* (upper Pliocene), of very large size.

The superposed outlines (Fig. 2) of the shovel-tusks emerging from the rostrum display the marked differences between the broad and relatively short tusks of *Platybelodon grangeri* and *Platybelodon barnumbrowni* and the elongate and relatively narrow incisive tusks of *Amebelodon*



PLATYBELODON AND AMEBELODON, SHOVEL-TUSKS SUPERPOSED

Fig. 2. Incisive tusks of the typical shovel-tuskers with dentinal tubules. *Platybelodon grangeri* type (A. M. 26200) of the Tung Gur horizon, Gobi Desert. *Platybelodon barnumbrowni* Barbour, type (Neb. Mus. 1-10-7-31) of Nebraska. *Amebelodon fricki* Barbour, type (Neb. Mus. 4-4-27) of Freedom, Frontier County, Nebraska. *Amebelodon* (*Torynobelodon*) *loomisi* Barbour, type (Neb. Mus. 2-3-9-28), near Republican City, Harlan County, Nebraska. About ¼ natural size.

fricki and *Amebelodon* (*Torynobelodon*) *loomisi* which closely resemble each other; whereas *Platybelodon grangeri* with its chisel-edged incisors differs from *Platybelodon barnumbrowni* with its irregular anterior incisive border. All these tusks differ from those of *Serbelodon* in the presence of dentinal tubules which are absent in *Serbelodon.*

New Generic Characters of Platybelodon

Platybelodon: (1) Fourth superior and inferior premolars with four ridge-crests instead of three ridge-crests as in *Amebelodon* and *Serbelodon.* (2) Strongly developed serridentine molar pattern broadly resembling that of *Serridentinus floridanus* and demonstrating clear subfamily distinction from *Amebelodon* in which the superior and inferior molars are of the *Trilophodon* pattern. (3) It now appears that *Platybelodon* is an offshoot of the Serridentinae rather than of the Amebelodontinae as originally supposed.